



An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

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2010 JANUARY

To mark their enormous contribution to microwave EME, including the first 5 band EME DXpedition, Michael DL1YMK and his XYL Monika receive a Special Achievement award from G4NNS, past UKuG Chairman, at the Martlesham Round Table held in November last year.



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Latest News ...

- OE stations set new national record on 122GHz
- Scatterpoint by email to be phased out by end of 2010 to be replaced with Scatterpoint Yahoo Group download. The paper version will still be available.
- GB3CSB now active on 23cm

MANY THANKS TO ALL OUR
CONTRIBUTORS THIS JANUARY ...
WITHOUT YOU THERE WOULD BE NO
SCATTERPOINT!

UK Microwave Group Contact Information

Chairman: G4BAO Dr. John C. Worsnop Email: chairman@microwavers.org Located: Cambridgeshire (JO02CG) Address: 20 Lode Avenue, Waterbeach, Cams, CB25 9PX Home Tel: ++44 (0)1223 862480	General Secretary: G8KMH Lehane Kellett Email: secretary@microwavers.org Located: Hampshire (IO91) Address: Honey Cottage, Bent Street, Nether Wallop, Hants., SO20 8EJ Home Tel: ++44 (0)1264 781786	Membership Secretary: G8DKK Bryan Harber Email: membership@microwavers.org Located: Hertfordshire (IO91VX) Address: 45 Brandles Road Letchworth Hertfordshire, SG6 2JA Home Tel: n/a	Treasurer: G4FSG Graham Murchie Email: treasurer@microwavers.org Located: Suffolk (JO02) Address: 42 Catherine Road, Woodbridge, Suffolk, IP12 4JP Home Tel: ++44 (0)7860 356775
Scatterpoint General Editor: G3PHO, Peter Day Email: editor@microwavers.org Located: South Yorkshire (IO93GJ) Address: 146 Springvale Road, Sheffield, S6 3NU, United Kingdom Home Tel: ++44 (0)114 2816701 (after 6pm)	Scatterpoint Activity News Editor: G8APZ Robin Lucas Email: scatterpoint@microwavers.org Located: Essex (JO01DO) Address: 84 Woodman Road Brentwood Essex, CM14 5AZ Home Tel: ++44 (0)1277 211126	Contest & Awards Manager: G3XDY John Quarmby Email: g3xdy@btinternet.com Located: Suffolk (JO02OB) Address: 12 Chestnut Close, Rushmere St. Andrew, Ipswich, Suffolk, IP5 1ED Home Tel: ++44 (0)1473 717 830	RSGB Microwave Manager: G6JYB Murray Niman Email: g6jyb@microwavers.org Located: Essex (JO01) Address: 55 Harrow Way Great Baddow Chelmsford Essex, CM2 7AU Home Tel: ++44 (0)1245 474969



From the Editor's Desk

A Very Happy New Year to all members of UKuG. It's just 25 years since, in February 1985, I first put fingers to keyboard and edited my first UK microwave newsletter. It was of course called the RSGB Microwave Newsletter in those days. This started as a single information sheet some 30 years ago in 1980! In 2004 the newsletter became Scatterpoint as you know it today. "From little acorns mighty oaks do grow"!

The past 25 to 30 years have seen many changes in amateur microwaves but some things haven't altered very much. Firstly, we are still actively seeking reader input for this modest journal! Secondly, activity on the microwave bands is still in need of a boost. Why not come on more regularly this year and enter some of the many contests listed in the following pages ?

One very noticeable change in these thirty years is the present proliferation of contests ! Newsletter no. 2 of 1980 lists just 4 contests, all in the summer/early Autumn! There were also two microwave round tables that year and microwavers were arguing about moving the talk-back frequency from 144.330 to 144.180MHz! Of course we had no internet, no laptops and no KST

.... Oh, the sheer bliss of the simple life!

73 from Peter, G3PHO Editor

News, views and articles for this newsletter are always welcome. Please send them to G3PHO (preferably by email) to the address shown above. **The closing date is the Friday at the end of the first full week of the month** if you want your material to be published in the next issue.

Press Release

'Bawdsey Research Station' Commemorations 2010

Special Event Stations

In recognition of the historic events that took place in 1935 and 1940 which played a significant part in Britain's war effort, Bawdsey Manor will be activated on three separate occasions during 2010.

During its time as the radar research centre and as an operational station for Chain Home radar, it was known by the acronym BRS – Bawdsey Research Station. Special event call signs with BRS as the suffix have been applied for to recognise this.

Over the weekend of 26 to 28 Feb 2010, we will be on the air on HF, 6m and VHF, operating CW, SSB and possibly some digital modes too. The call sign requested is GB75BRS, since this operation will commemorate the 75th anniversary of the Daventry Experiment, which resulted in radar development in the UK being based first at Orfordness, then at Bawdsey.

Later in the year we will operate on two weekends to commemorate the 70th anniversary of the start and end of the Battle of Britain in 1940. The call sign GB70BRS has been requested. These weekends will be 5/6 June, and 18/19 Sept. Operating bands and modes will be as for the February event.

Members of the public, and students from the school now based at the Manor, will be welcomed at any of the events, where there will also be display materials relating to Bawdsey's history during this period.

A special QSL card will be issued to those making contact with either of the stations, and a parchment certificate will be available on request to stations who make contact with both call signs – information about the stations, operation and QSL arrangements can be found on our web site at:

<http://www.bawdseyresearchstation.org.uk>

Contact: Dave Powis, G4HUP by email:

g4hup@btinternet.com

Or by telephone: 07777 648488

UK MICROWAVE GROUP SUBSCRIPTION INFORMATION

The following subscription rates now apply.

Please make sure that you pay the stated amounts when you renew your subs next time. If the amount is not correct your subs will be allocated on a pro-rata basis and you could miss out on a newsletter or two!

Your personal renewal date is shown at the foot of your address label if you receive Scatterpoint in paper format.

If you are an email subscriber then you will have to make a quick check with the membership secretary if you have forgotten the renewal date. From now please try to renew in good time so that continuity of newsletter issues is maintained. Put a **renewal date reminder** somewhere prominent in your shack (the editor suggests having it tattooed on your forearm!).

Please also note the payment methods and be meticulous with Paypal and cheque details.

Renewal of subscriptions requiring a **paper copy** of Scatterpoint are as follows:

Delivery to:	UK £	US \$	Eur €
UK	14.00	-	-
Europe	18.00	36.00	26.00
Rest of World	24.00	48.00	36.00

Payment can be made by:

* **Paypal to ukug@microwavers.org**
or

* **a cheque (drawn on a UK bank) payable to 'UK Microwave Group' and sent to the membership secretary** (or as a last resort, by cash sent to the treasurer!)

The standard membership rate for 2010 is:

UK	£6.00
US	\$12.00
Europe	€10.00

This basic sum is for **UKuG membership**. For this you receive Scatterpoint for **FREE** by email. If you want a paper copy **then the higher rates apply**.

A 3400 MHz Bandpass Filter for the 9cm Band

By Bryan Harber, G8DKK

Some time ago I purchased an EME 101B 3300MHz to 3600MHz Multiplier kit from Mini-kits in Australia¹ with a view to using it as part of a 3400MHz (9cm) transverter. The subsequent acquisition of a complete 3400MHz transverter consigned this useful device to the back burner.

It is one of a range of multiplier kits provided to allow the Mini-kits ATV transmitter to be used on microwave bands above the 23cm band. There are two versions: EME101B PCB, provided as a PCB with instructions and EME 101B Kit that contains the parts (minus SMA connectors) to populate the board. When I purchased this board during 2008 I was more interested in the filter characteristics than the performance of the on-board active multiplier hence the plot in figure1 shows only the passband and stopband characteristics of the filter.

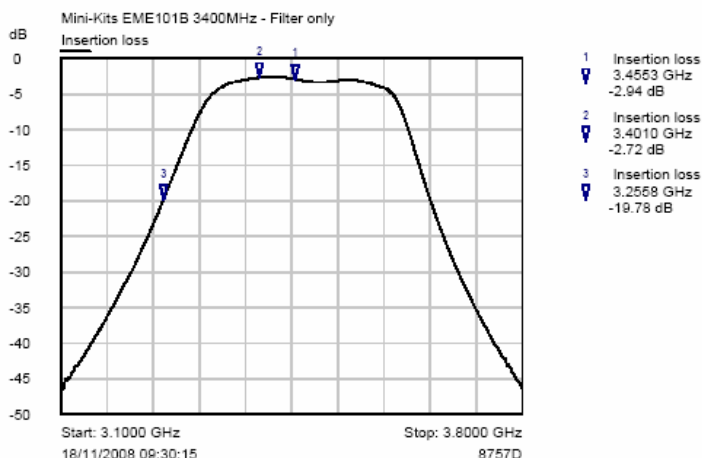


Figure 1. Filter Plot

The EME 101B Kit comprises two MMIC stages, the first of which acts as a x3 frequency multiplier with an input range from 1100 MHz to 1200 MHz at around 2mW (+3dBm) to produce an output in the range 3300 MHz to 3600 MHz. A second MMIC at the output of the filter amplifies the signal level to around 10mW (+10dBm).

I purchased the EME101B PCB version and have measured the characteristics of the filter with two different network analysers. The photograph (photo 1) shows how I connected two short lengths of 0.085" semi-rigid coax in order to make the measurements. I used the pre-drilled holes intended for the MMICs to feed the centre conductor of the semi-rigid cable on to the 50Ω track while the outer conductor is soldered directly to the ground plane on the underside of the board.

The dimensions of the PCB are given as 75mm by 35mm and this is very close to the standard Schubert box size of 74mm x 37mm. Trimming the two shorter sides with a scalpel and metal rule provides a board that will fit in the tin plate box to which a pair of SMA connectors can be soldered to provide the required input and output connections.

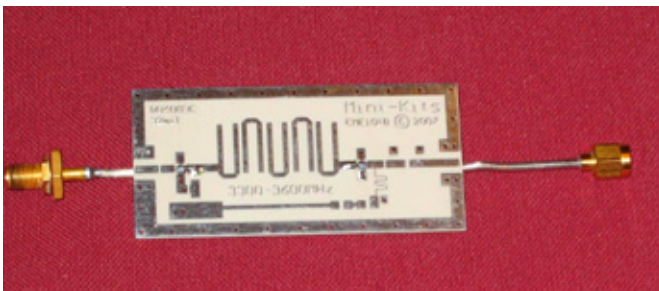


Photo 1. 3.4GHz Mini-kits Multiplier

I can envisage 3 possible uses for this kit:

1. Its original intent as a frequency multiplier from 1100 MHz with output filter
2. An image filter for a 3400MHz transmitter or receiver
3. A filter and amplifier module for a 3400MHz transmitter

An image filter can be constructed by fitting into a suitable tinplate box and bridging the gaps in the input and output tracks where the components are normally fitted with thin strips of copper foil. It should be noted that this module is not suitable for use as a local oscillator multiplier as can be seen by examining the response plot.

A 3400MHz transmitter with a 144MHz IF requires a LO frequency of 3256MHz and at this frequency the plot shows an insertion loss through the filter of around 20 dB. Therefore this filter can not be used as a LO filter. In practice this is of no consequence as the filter is really required as an image filter for either a transmit or receive system or both as in a transverter.

There are two options for use as an amplifier/filter module: either fit one or both of the MMICs. The input MMIC is deliberately biased in class C in order to produce a strong harmonic content for use in the multiplier. This stage can be re-biased as a class A amplifier and used to increase the input signal level from, for example, a diode mixer. This would make it especially useful as a module within a 3400MHz transmit converter. Where a smaller amount of gain is required, such as the drive source for a surplus Ionica² amplifier module then the first stage can be omitted and bridged with copper foil as before. The surplus Ionica PAs typically require 1mW of drive for 10W – 15W of output power.

With the Australian dollar at just below 1.8 to the pound and a kit price of less than \$50 AUD this kit is well worth considering as a building block for a 3400MHz Tx/Rx system.

Web References:

1. Mini-kits (Australia): www.minikits.com.au
2. GM4ISM web site for Ionica mods: www.dc2light.pwp.blueyonder.co.uk

EME echo tests on the 5.76GHz amateur band from ZL

by Steve ZL1TPH



The system completed and installed

EME is for Earth-Moon-Earth communications. An advantage of this propagation mode is that you can hear your own return echoes. Depending upon whether the moon is at perigee or apogee, your transmission echo will return to you at between 2.4 to 2.7 seconds of delay. The distance from the earth to the moon varies between 356,000 km and 407,000 km. The radio path losses associated are high. Four components should be looked at. They are the actual transmission path losses to the moon, the scatter loss reflections off the moon surface, combined with the path losses back to the

earth receiving station and the fourth component being station performance needed to achieve this.

The return moon path losses for the 6 cm band amateur band is between 282dB and 285dB. Looking at the VK3UM Performance calculator software for this band showed a requirement for a 3.6 metre diameter dish, a 0.8dB noise figure preamp, a power amp TX output of 100 watts and circular polarization using a septum feed to realise a 0dB return echo. The 0dB SNR (signal to noise ratio) to the human ear with a CW transmission received is audible but not strong. The human ear itself can be very selective with a constant carrier such as CW, and so many operators can hear down to -8dB SNR before decoding is lost.

A station was built to see if it was possible to receive echoes via the moon. The dish was a 12 foot or 3.6 metre TRVO mesh dish kindly loaned from Ian, ZL1AOX. This diameter dish at the 6cm band (5.76 GHz) has 44dBi of gain and a 3dB beam width angle of only one degree - the moon as we see it from earth subtends only a $\frac{1}{2}$ degree. The moon also moves one degree every four minutes. Moon tracking from a ground station is therefore critical. Because of limited funds a polar mount and small tower was built on a budget.

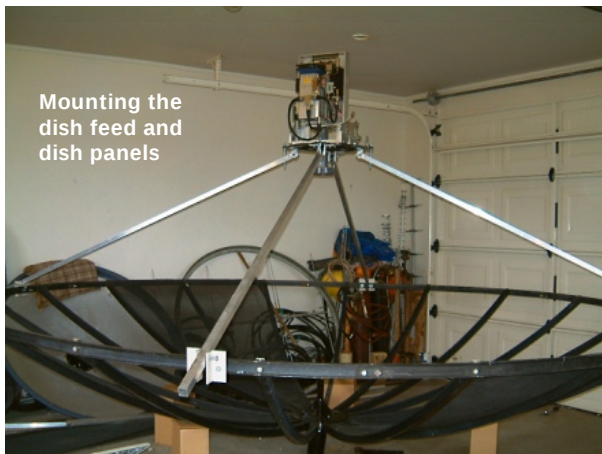
The polar mount offers simplicity with tracking of the Moon. A main rotating axis shaft is placed pointing true North and angled down. If your latitude is -36 degree South you point this shaft towards the true North and downwards. The angle from the lowest point to ground in the acute angle is 36 degrees also. This axis shaft then rotates the same and is parallel to the earth's rotating axis. To spin this axis shaft a DC electric actuator is used



Polar mount and actuator ready for the dish

for tracking.

The other requirement for the polar mount is to have another adjustment called the declination angle. This only needs to be adjusted once per day to track the moon. For the declination adjustment a car scissor jack was used. It is then a requirement with each moon pass to point the dish towards the moon in the azimuth plane and then to elevate the dish to point at the moon. Once this declination angle is set the tracking of the moon is achieved with only turning the main polar axis shaft with the DC electric actuator. To aid visual bore site when looking from behind a large dish, a 30mm pipe, one metre long, is used with cross hairs.

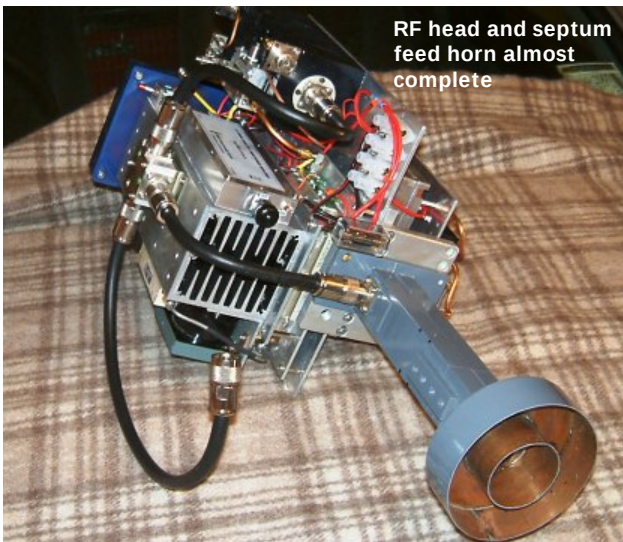


Mounting the dish feed and dish panels

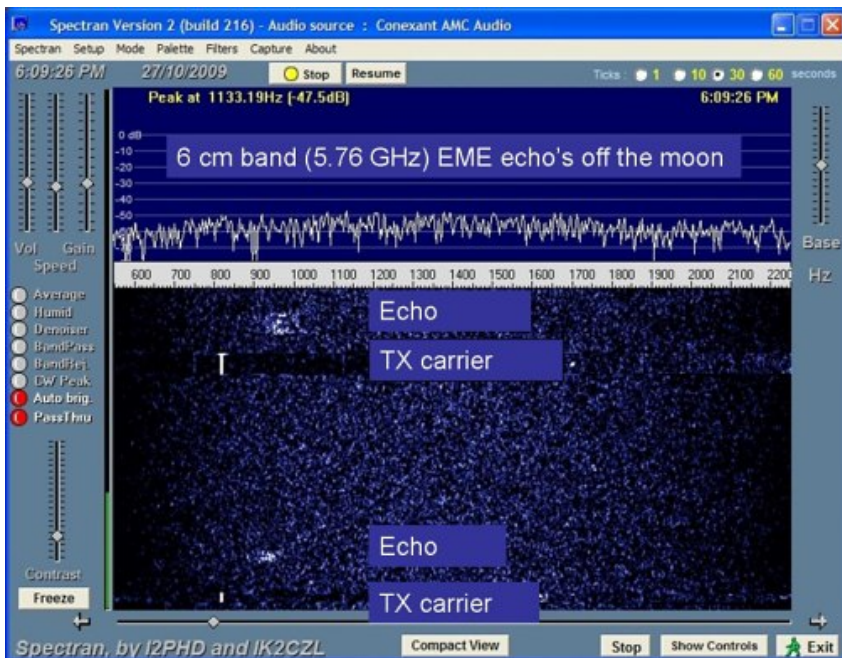
Once the 3.6m dish was assembled and placed on the polar mount and then mounted on small tower in the back yard, the RF gear was set up. It comprises of a modified DXR-700 transverter from 5.76GHz to a 144 MHz IF for both TX and RX. A second transverter was also used to transvert the 144MHz IF down to 28MHz so as to use the facility of the HF radio, a TS690S, for the use of the narrow band filters and split frequency facilities. Most of the RF equipment is mounted at the feed of the dish. This included both transverters, along with the low noise preamp at 0.7dB with

26dB of gain and SSPA producing 85 watts to the feed. The dish feed is a square Septum polarizer transformer for circular polarization and built in the home workshop.

Numerous test were completed beforehand. Receive performance was checked prior between cold sky to warm earth. The difference between the two produced around 4.2dB noise increase. These tests were for a low noise figure check and were reasonable. Next was to measure actual Sun noise compared to cold sky. This test realises the overall gain of your dish and should have produced a 11dB difference in theory with the current SFI. What was realised was around 7 to 7.5dB as measured on a Spectrum analyzer set to 1dB / log division on the 28MHz IF.



RF head and septum feed horn almost complete



On the 27th of October 2009, return echoes were received (see the Spectran trace above). They were not strong but easily audible when wearing headphones. Spectran V2 software was also used with a PC card sound interface to sample recordings into JPEG files.

A second PC is used, running WSJT software, to follow the Doppler shift that can be as high as +/- 10kHz on 6cm. Numerous other echo tests have been completed over a month or so. More tests are required to check system performance to achieve hopefully stronger echoes. At this point of time, echoes received are believed to be around -3dB SNR assumed.

Reference and notes:

A special note of thanks to Sam G4DDK, who explained to me personally, during his recent visit to New Zealand, on how a polar mount is set up and works.

- 2010 Handbook / Chapter 30 / EME Communications:
http://physics.princeton.edu/pulsar/K1JT/EME_2010_Hbk.pdf
- Septum polarizer dish feeds: <http://www.ok1dfc.com/EME/emeweb.htm>
- VK3UM Performance calculator software: <http://www.sm2cew.com/download.htm>
- VK3UM Electro Magnetic Radiation (EMR) safety issues calculator:
<http://www.sm2cew.com/download.htm>
- Spectran V2 software: <http://digilander.libero.it/i2phd/spectran.html>

Building an Evanescent filter for 23 cm EME

By John Jaminet, W3HMS

Reading the brief little box in Scatterpoint for 2009 , I was reminded that 23 cm filters can be quite small and effective. I built a 23 cm evanescent mode filter in WR-90 ...yes, WR –nine zero waveguide .

I got the info from the Paul Wade, W1GHZ Web site in his article "Waveguide Filters You Can Build...and Tune" in part 2 entitled Evanescent Mode Wave Guide Filters. By now or very soon, it should be in his "On Line Antenna Handbook"

My EME rig is by DB6NT. It is his 10 MHz precision oscillator stabilized transverter for an IF 28.0 to 28.1MHz for 1296.00 to 1296.100 MHz in CW and WSJT6/7 for JT65C. DB6NT says this rig MUST use a filter to reject the image. The amp is the DEMI 120 w. solid state amplifier.

The DB6NT transverter oscillator is on 1268MHz, the desired sideband on 1296MHz and the undesired image is on 1240MHz.

The rebuilding/testing/preliminary tune-up was done by Fred, W3MMV, and final tuning by Jerry, AA3HB using his commercial network analyzer.

The measured insertion loss is 2.6 dB, the bandwidth is 10 MHz and the rejection is 23 dB at 1296.1MHz. The filter has tuning screws but is only 94 mm long. To me , it has been most satisfactory in use and I like the small size.

10GHz CUMULATIVES ACTIVITY IN THE MIDDLE EAST ?



Probably not! However the tripod, dish and equipment assembly look very much like the editor's MCom white box 10GHz system he used on the 1990s!! We're not sure what these soldiers were using for talkback as we never saw them come up on KST but it's amazing how great minds think alike when it comes to designing microwave equipment!

"CQ YI, YK, 4X4 for 3cm QSOs"

On second thoughts this group could even be the G3ZME/P club portable station!

Waveguide Slot Antenna – Update 2009

Paul Wade W1GHZ w1ghz@arrl.net Dan Welch W6DFW

The waveguide slot antenna spreadsheet in the *W1GHZ Microwave Antenna Book – Online* has been used to successfully calculate dimensions by a number of hams. Some of them have reported having to trim but few of them were made with enough precision to be sure.

Sometime in 2005, Petr Kauler (kauler@volny.cz) suggested that I had made an error in the spreadsheet calculations, in the slot offset in cell G36.

The formula used is $=(WG_a/PI())*SQRT(ASIN(New_Y))$

While the correct form based on the equation should be:

$=(WG_a/PI())*ASIN(SQRT(New_Y))$

The difference in results is pretty small and, furthermore, previous versions of slot antenna spreadsheets by others had used the same form, so I figured it was close enough. Remember that some of the other numbers in the spreadsheet were found by eyeballing graphs in old papers, so they aren't accurate to six decimal places.

Earlier this year, Dan Welch, W6DFW, reported that he had built some 24-slot versions for 10 GHz using a precision CNC machine. These accurately machined antennas, calculated for 10.368 GHz, were centered at about 10.220 GHz.

I changed the formula in the spreadsheet, and Dan made an antenna with the new, slightly different, dimensions. Dan measured this one as centered at 10.331 GHz, with about 20 dB return loss and about 200 MHz bandwidth, so it is good with no tuning. He sent another copy to me. It is a thing of beauty, and I have confirmed the results.

The corrected spreadsheet is now at:

www.w1ghz.org/antbook/slotantenna.xls and
<http://www.qsl.net/w/w1ghz/antbook/slotantenna.xls>

The small difference in dimensions should not affect the antenna performance, only the return loss, so you don't have to throw away your old slot antenna. For those who made them with a drill and a file, there shouldn't be any difference – and I respect your ham spirit for getting the job done with what you have.

Petits bouts or Small Pieces

by Alain Nierveze F1GQB

Editor's note: Alain kindly pointed me to his website where this interesting information can be found. The text below is merely a précis of what he has to say in French! The photos are basically self explanatory and anyone with an Alcatel "Boîte blanche" should be able to follow the ideas Alain puts forward. The original article, in French, can be found at: <http://www.radio-astronomie.com/pbout.htm>

Petits bouts'=small pieces. Alain used those small pieces as mixers to 84GHz at least (with his highest gunn osc) with a small piece of wr12 waveguide.

As detector 10mw at 84GHz gives 30 mV dc.

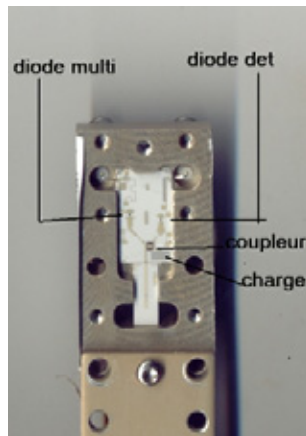
It can be used as field detector, or a detector in swr slotted lines, etc.

AN INEXPENSIVE MILLIMETRE WAVE MIXER:

I have just tested one of those level detectors that can be found in the Alcatel "White Boxes" and which are, on the one hand, a detector and, on the other, a multiplier. By putting the diode detector (not the multiplier one) at the input of my Scientific Atlanta 1710 receiver and I can receive (to tell the truth, better than with a deluxe Hughes mixer) an 84GHz, 10mW Gunn oscillator up to 20cm away, while coupling directly onto the diode after first having removed the small lid (see photos).

These little used items can function as harmonic mixers at millimetre wavelength. They are fun and not expensive!

The multiplier can be used to multiplier 12GHz to 24GHz. These "petits bouts" could therefore be used for TX and RX. One can make a 24GHz harmonic mixer using a 12GHz LO, (eg a surplus"brick oscillator"). Here then is a simple receiver.

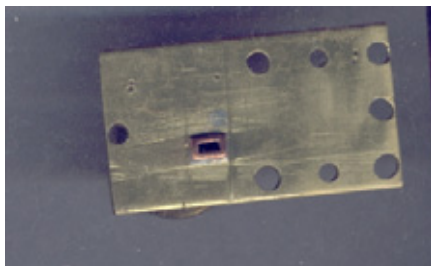


The modification is simple: cut a small brass plate and drill where necessary to match the holes on the module. The guide is WR12. WR8 would be suitable for 122GHz. The flange is a normal one, not Procom (holes not at the right place). The guide is inserted inside towards the diode until they almost touch! Solder everything up for and a clean and firm construction.

I also tested this system in detector mode: a 10mW Gunn at 84GHz gives a negative voltage of 30mV at the output. This can be amplified by an op-amp as we describe on our website. This little module can thus be used as detector everywhere where there is a need ... e.g with a slotted line, with a cavity wavemeter or, with a horn, as a field intensity measuring device.

Since there is significant "Xtal current", these modules could probably be used as millimetre wave mixers beyond 100GHz, in fundamental mode.

73 de F1GQB
Alain Nierveze
492 Allée Montesquieu
33290 Le Pian Medoc
France.



web: www.radio-astronomie.com
email: nierveze@radio-astronomie.com

A LONG DISTANCE QSO ON 122.250GHz IN AUSTRIA

by Wolfgang, OE3WOG

Date: 20.11.2009

Start: 09:30 UTC

End: 13:40 UTC

Callsigns: OE3WOG/P and OE5VRL/5

Mode of Operation: CW and SSB

Early in 2009, Richard, OE3RA and myself (OE3WOG), began experiments on 122.250GHz. First we made the usual tests in the backyard, followed with the first two way QSO in OE on the 122GHz band over a distance of 1.5Km. Later, we successfully extended the distance to 10km.

We encouraged Rudi, OE5VRL to join on 122GHz and he built the usual pair of mm equipment consisting of transverter (mixer) and a CW beacon transmitter (varactor).

After a view field tests on shorter distances with different success, followed by equipment upgrades, we decided to test longer paths, knowing the actual IARU R1 DX record from DL was just over 31 Km and trials from OK over a distance of 21km. We selected two paths with 44km and 55km lengths, hoping to make a new DX record.

The weather forecast for Friday the 20 September 2009 was promising a sunny day, +15C air temperature and no mist, so we decided to go for it.

For antenna alignment we took our 76 GHz equipment which was already proven over a 133km distance.

The first contact over 44 Km:

Location OE3WOG/P: Motorway Service Station at Strengberg , JN78HC97rp, 440m asl

Location OE5VRL/5: North-East side of Breitenstein Hill, JN78DK40bs, 870m asl

On 76 GHz, we easily found each other. OE5VRL/5 used a 10mW CW transmitter with a 25dB conical horn pointing in my direction. After antenna alignment on my end, I received his signal at 30dB over noise. After that, we changed TX direction and Rudi finally aligned his parabolic dish.

On both stations, transverters and CW beacons for 76 and 122 GHz are placed in front of the dish. If the antennas are aligned on a lower frequency band only the equipment has to be changed and no further antenna alignment is required, which is a big benefit because antenna alignment is more difficult on 122GHz.

RX Reports on 122.250 GHz:

OE5VRL/5 TX with appr. 1mW in CW >> **OE3WOG/P RX** Report: 519, audio level between 0 to 8dB S/N. Dial: 122.250 (270)GHz

OE3WOG/P TX with appr. 50microwatts CW and SSB >> **OE5VRL/5 RX** Report: 519 in CW, 51 for SSB. Due to QSB, the signal sometimes dropped below noise but it was possible to make a one way SSB contact to OE5VRL/5. Dial: 122.250 (317)GHz

Time: 10:17 UTC

Encouraged by that result (we have broken the DX Record already) we decided to try the 55km distance.

Location OE3WOG/P: Lookout tower Buchenberg, JN77HX87mg 740m asl

Location OE5VRL/5: still at North-East side of Breitenstein Hill JN78DK40bs, 870m asl

Antenna alignment on 76GHz went well, with strong signal levels both ways.

RX Reports on 122.250GHz:

OE5VRL /5 TX with approx 1mW in CW >> **OE3WOG /P RX** Report: 519. The received signal over a period of 15 minutes shows signal level changes between 0 and 10 dB S/N on the audio meter. Dial: 122.250 (300) GHz

OE3WOG /P TX approx 50microwatt in CW and SSB >> **OE5VRL /5 RX** Report: 519 in CW, 51 in SSB. Dial: 122.250 (205) GHz

Time: 12:43 UTC

Note: In contrast to our first QSO in the morning, we think we have got a bit more signal level but more and deeper QSB phases in the afternoon.

Dial means the frequency readout () on our 2m and 70cm IF equipment. It shows the actual difference between the LO frequencies, (approx. 50 to 100kHz, depending on warm-up time and long term stability)....not bad for a multiplication of x864 !

Both 2-way QSOs were made in CW. SSB (voice) was only possible one way in the direction from OE3WOG/P to OE5VRL/5.

Equipment:

OE5VRL /5:

- Tripod, 12Vbattery
- home made parabolic antenna 470mm diam, gain approx. 47dBi
- 76GHz CW transmitter with conical horn, gain approx. 25dB, Pout 12 mW
- 76GHz transverter (mixer), Pout approx. 800uW, NF approx. 15dB
- 122GHz transverter, Pout approx. 50uW, NF approx. 25dB
- 122GHz CW transmitter, Pout appr. 1mW
- IF 2m FT290

OE3WOG /P:

- Tripod, 12Vbattery
- 700mm parabolic dish, gain appr. 51dBi
- 76 GHz CW transmitter, Pout appr. 7mW,
- 76 GHz transverter, Pout appr. 600microW, NF appr.15db
- 122 GHZ transverter, Pout appr. 50microW, NF appr.25db
- IF 70cm FT790RII

Remarks:

Both stations are now using 13.5GHz DROs in the LO chain. We still have the high frequency OCXOs in place. Due to a multiplication factor of x96 (DB6NTdesign), it takes an OCXO frequency of approx. 141MHz, which is a challenge for 5th overtone crystals and for today's OXCO design available for hams. Because a DRO also can lock on lower injection frequencies, we will change the crystals in our OCXOs for frequencies around 100 MHz, in the case of 76 and 122GHz. On those frequencies, OCXOs are easier to align, are more stable and less noisy. We have now ordered crystals from a supplier in OK, and will see what we get. Results will be issued on the reflector and in Scatterpoint.

Visitors and helping hands:

Peter, OE5MPL

Hubert, OE5MKM

Richard, OE3WRA

Videos are available on YouTube:

<http://www.youtube.com/watch?v=cynX4VD2n6Q>

<http://www.youtube.com/watch?v=BSA720ZiAgw>

http://www.youtube.com/watch?v=TENvB4_HyxI

A **thank you** to the 122GHz pioneers, DL2AM, DC0DA, DJ6BU and DH6FAE for infos, ideas and discussions on this particular matter.

73 de Wolfgang, OE3WOG
email: mikrowelle@oevsv.at

Memories of Martlesham 2009



Left:

Retiring UKuG Chairman Brian G4NNS cuts the UKuG's 10th birthday cake



Right:

Simon G3LQR (left) receives the G3EEZ Trophy for his contributions to UK micro-waves

Below: Mike G3LYP (left) receives the G3VVB trophy for Microwave Home Construction



What's up? Tom G4TWG and David G6GXK

December 2009 Lowband Contest Results

December 2009 Lowband Contest Results: Overview

The number of entrants was slightly up on 2008 for this event. The x3 multiplier for contacts with your own country made little difference for most entrants, as there were few contacts outside their own country on 1.3GHz and none on the higher bands. GM4CXM was the exception to this, as all Ray's contacts were outside GM. Looking at the logs over all the Low Band events in 2009 there were only 10 QSOs outside the UK out of a total of 232 contacts in the logs, so the effect of the multiplier would be limited for most entrants.

Congratulations go to George G8AIM who won the overall contest and the 2.3GHz and 3.4GHz bands. Sam G4DDK took the overall runners up spot and led on 1.3GHz. Both will receive certificates, as will the runners-up on each band.

73 from G3XDY

December 2009 Low Band Contest: Overall and Band Scores

Overall

Pos	Callsign	1.3GHz	2.3GHz	3.4GHz	Total
1	G8AIM	365	1000	1000	2365
2	G4DDK	1000	507	786	2293
3	G0DJA	704	0	0	704
4	GM4CXM	693	0	0	693
5	G0JMI/P	121	288	0	409

1.3GHz

Pos	Callsign	Locator	QSOs	Best DX	Points
1	G4DDK	JO02PA	9	GI6ATZ	4426
2	G0DJA	IO93IF	7	GI6ATZ	3118
3	GM4CXM	IO75TW	7	G4EAT	3069
4	G8AIM	IO92FH	6	G4EAT	1614
5	G0JMI/P	IO91ME	2	G8AIM	534

2.3GHz

Pos	Callsign	Locator	QSOs	Best DX	Points
1	G8AIM	IO92FH	4	G4EAT	1179
2	G4DDK	JO02PA	3	G8DKK	598
3	G0JMI/P	IO91ME	2	G8AIM	339

3.4GHz

Pos	Callsign	Locator	QSOs	Best DX	Points
1	G8AIM	IO92FH	2	G3UKV	336
2	G4DDK	JO02OB	2	G4BAO	264

ACTIVITY NEWS FROM THE WORLD ABOVE 1000MHz

By Robin Lucas, G8APZ

EA/F2CT/P - DECEMBER 10GHz

Undaunted by the winter weather, Guy, **F2CT** crossed the border into Spain on Sunday 20th Dec in order to do some **10GHz** tests with Maurice **F6DKW** in JN18CS, at a distance of 677 km.

A contact was made on SSB at 53 both ways. The temperature at Guy's end was around minus 3°C !



The photo shows **EA/F2CT/p** operating from **IN93GF** at an altitude of 1100m .

CONTEST AND ACTIVITY REMINDER

As I write this, the UKuG contest calendar is still being finalised. It will be ready in time for the editor to include elsewhere in Scatterpoint, but since my deadlines are a week or so earlier than Peter's, I cannot include them here.

I hope to have both the UK and French dates in time for next month's column.

F1XA* BEACONS CALLSIGN CHANGES TO F1ZA*

The **IN88HL** beacons, **F1XAO** on **5.7GHz**, **F1XAP** on **10GHz** and **F1XAQ** on **24GHz** went temporarily QRT on 8th December, 2009, to enable the team to change the callsign in the keyers to conform to new French licence requirements. As previously reported, all French beacons are in the course of changing to calls with **Z** as the first letter of the suffix.

Eric, **F1GHB** says that the calls have been changed but whilst making the change, they detected a problem on one antenna radome, due to an ingress of water.

The team (**F1LHC**, **F5EFD** and **F1GHB**) hope to be able to return the beacons to service soon.

CORNWALL 10GHz BEACON GB3MCB on 10368.980

From: Brian Coleman, G4NNS

Some months ago, the Mid Cornwall Beacon and repeater group agreed to host a **10GHz** beacon at their site near St Austell on Hensbarrow Downs.

On the 8th December, I travelled to the site where I was greeted by beacon keeper Phil Matthews **M0PHM** and his team of helpers.

As I approached the site I entered thick cloud and driving drizzle and needed directing for the last 100m or so as I could not see the beacon tower from the road.

The weather was far from ideal for climbing and installing equipment on a tower but, undeterred, Phil and his team completed the installation by early in the afternoon and the **10GHz** beacon was put on the air.

The frequency was checked using a **10GHz** transverter with a GPS locked local oscillator and Ralph, **G4ALY** phoned to say the beacon was readable in St. Dominic (near Saltash), despite the 42km path being an obstructed one. I stayed locally overnight and returned home the next day.

Shortly after setting out, I stopped to switch on the transverter system, and with open waveguide in the load area of the car I was able to copy the beacon most of the way along the A30 to Launceston. The effect of Doppler shift from reflections from vehicles on the other side of the road was most eerie!

It was not long before I detected the beacon back at home in NW Hampshire, a distance of some 245Km, possibly by aircraft scatter.

The choice of a sectoral horn as the antenna saves wasting power out into the Atlantic and should give excellent coverage of the UK, most of northern France and up the English Channel to the



east as shown by the 3dB points marked on the map.

The Mid Cornwall Group recently moved all of their beacons and VHF repeaters to a new mast since the old one was rusting and becoming dangerous to climb. The group relies on donations to keep all their beacons on air, and welcomes any support (see their website). Many thanks to the Mid Cornwall Group for installing and hosting the beacon. Reports via DXC or beacon-spot.eu will be very much appreciated.

NEW BEACON GB3CSB 1296.985

The first of the new beacons from Scotland is now QRV on **23cm** from IO75XX.

David Anderson, **GM6BIG** and Mark, **GM4ISM** are the beacon builders, and David hopes to have the **13cm** and **9cm** beacons active in early 2010.

Some tests from David's home using 3W (1.5W at the antenna) into a small 11dB gain beam (wide beam for beacon use) brought reception reports from the Midlands and a few from the south coast, so it should do well from the proper site.

David thanks all those who have helped with donations of money, time, and equipment, and to the CSFMG for making the site available.

Dave Ackrill, **G0DJA** has been monitoring the new beacon, and reports:

"Signals from the **GB3CSB** beacon using the JT4g mode have been interesting. On the colder, and probably less humid, days signals can be up to -15dB at times, but plunge to -25dB during wetter days.

I have been keeping a spreadsheet of the reception reports, but the best period was probably the 27th December, which was the first day that I had set up WSJT to monitor the beacon. It is about 354km from me and, apart from **GM4CXM**, can be a direction that I struggle to make contacts.

Reflections from aircraft occasionally mean that the program seems to get confused about which signal it is trying to decode, and the beacon keeper (**GM6BIG**) has said that he intends to adjust the transmit timing, as the DT value shows that it is out by a few seconds at the moment."

...AND FINALLY

The lack of activity reports means another short column this month. I cannot edit what I don't receive, and I depend on getting at least some of the material from the readership.

73, Robin Lucas, G8APZ

Please send your activity news for this column to:

scatterpoint@microwavers.org

UKuG MICROWAVE CONTESTS 2010

Aims and comments:

The UKuG committee will be reviewing the contest programme during the early part of 2010, with a view to consulting on proposed changes at Round Tables over the rest of the year and introducing a new programme in 2011. For 2010 the contest calendar and rules will be similar to 2010, with a few minor changes.

There will continue to be **two sets of 24GHz events** this year, the **24/47/76GHz events will be more attuned to rover style operation**, while many stations taking part in the 5.7/10/24GHz events will stay at one location for each contest period.

The **squares multiplier in the 5.7/10/24GHz events has been removed** as analysis indicated that it didn't change the results tables significantly, and was felt to be disadvantageous to stations in the North West. **No multipliers will be used in the Low Band events this year**, for similar reasons.

As usual we have tried to avoid clashes and adjacent weekends with major VHF contests and events such as rallies and microwave meetings but, inevitably, this has not been possible in all cases.

Entries will continue to be listed in one table, but leading entries in certain categories marked, with certificates awarded where appropriate. These categories include Portable, Low-power, Radio-only talkback and New entrant. The exception is that there will continue to be a separate Restricted section for the 10GHz cumulatives.

Microwavers in Europe are most welcome to join in our UK contests. There is already a core of French, Dutch and Belgian stations who appear regularly in our summer contests. We would like many more to do the same!

THE RULES listed below are final and binding for 2010 (there are some changes from 2009). **The following contests are scheduled for 2010:**

- ◆ Low Microwave Bands - 1.3GHz/2.3GHz/3.4GHz (4 contest days).
- ◆ 5.7GHz Cumulatives (5 contest days with 3 to count for scoring), on the same days as the 10GHz/24GHz Cumulatives.
- ◆ 10GHz Cumulatives (5 contest days with 3 to count for scoring), on the same days as the 5.7GHz/24GHz Cumulatives.
- ◆ 24GHz GORRJ Cumulatives (5 contest days with 3 to count for scoring), on the same days as the 5.7GHz/10GHz Cumulatives.
- ◆ 24GHz Trophy Cumulatives (3 contest days with 2 to count for scoring), on the same days as the 47/76GHz Cumulatives.
- ◆ 47GHz Cumulatives (3 contest days with 2 to count for scoring), on the same days as the 24/76GHz Cumulatives.
- ◆ 76GHz Cumulatives (3 contest days with 2 to count for scoring), on the same days as the 24/47GHz Cumulatives.
- ◆ In addition there are non-competitive activity days on the last Sunday in the month.
- ◆ The full contest program and rules are published in the January 2010 issue of the Scatterpoint Microwave Newsletter and are also available on the Internet on the UKuG website at <http://www.microwavers.org>

General Rules (applicable to all events)

The Contests are open to all comers (you do not have to be an RSGB or UK Microwave Group member). Stations located outside of the UK (G, GW, GM, GI, GD, GU, GJ) may enter a contest, and will be tabulated within the overall results tables, but will only be eligible for their own awards.

Contestants are expected to enter in the true spirit of the event and to adhere strictly to any equipment or power restrictions that apply to the particular contest.

Operators may enter as home station or portable (either mixed or separately); in multi-band contests, single-band entries are always acceptable.

Stations: Entrants must not change their location or callsign during the contest, unless the Rover rule is invoked. In multi-band events, all stations forming one entry must be located within a circle of 500m radius. An operator may reside outside the station's area ("remote station"), connected to the station via a "remote control terminal". In such a case, the Locator for the contest is the Locator of the station's position. An operator may only operate one single station, regardless if it is locally or remotely operated, during the same event.

Contacts: Only one scoring contact may be made with a given station on each band, regardless of suffix (/P, /M, etc) during an individual contest or cumulative activity period, unless the Rover rule is invoked. Contacts made using repeaters, satellites or moonbounce (EME) will not count for points. Contacts with callsigns appearing as operators on any of the cover sheets forming an entry will not count for points or multipliers.

Scoring: Contacts are scored on the basis of 1 point per kilometre for full, two-way microwave contacts and at half points for one-way (ie crossband) contacts.

Exchanges: Contest exchanges on the microwave bands consist of RS(T) + serial number (starting at 001). In addition, the six (or eight) figure QTH Locator must be exchanged either via the microwave band or on the talkback frequency. Where the Locator is not known, a full six-figure National Grid Reference (UK only) must be provided. In multiband contests, the serial number will start at 001 for each band (ie a common sequence across the bands is NOT to be used). No points will be lost if a non-competing station cannot provide an IARU locator, serial number, or any other information that may be required. However, the receiving operator must receive and record sufficient information to be able to calculate the score.

Talkback: Talkback can be used to assist in setting up a QSO, but note that the contest exchange must be made via the microwave band. It is not permissible to use the talkback as a means of checking the report or serial number – they must be copied via microwaves – and after the QSO is complete, care should be taken to avoid accidentally repeating the exchange via talkback. There is no restriction on the talkback methods that can be used – other amateur band, internet, phone, etc. In setting up the QSO, it is also permissible to send back received audio to the other station, for example to help with antenna alignment. An exception is that our contests do allow one way (cross-band) QSOs for half points, and in this case, the other band can be used by one of the stations.

Paperwork/Entries: Contestants are asked to make sure their entries have been scored correctly and that all relevant bonus points and multipliers have been claimed.

All entries must be prefaced with a **summary / cover sheet** showing: Title of contest, name(s) of operator(s), location(s) of station, section entered, callsign used, band score(s), multipliers or bonus points, final claimed score. The sheet should also detail equipment used, particularly the power output, antenna and receiver for both the microwave band and the talkback. This is very important if the logs are entered in one of the restricted sections. Where the contest has a 'rover' facility, it is essential that each location used is clearly stated. Where Locator squares and / or countries are used as multipliers for bonus points, a summary list of the squares and / or countries worked must be attached to the contest cover (summary) sheet. This list should include the callsign and date of the first contact for each square / country.

Log entries are preferred to be received by email, but may also be submitted on paper. For electronic entries, the format should be one of the following: ASCII text, Microsoft Excel (no Macros to be included), Microsoft Word, or the G4JNT contest software format, IARU REGTEST format. E-mail entries will be acknowledged to confirm receipt.

All logs should be sent to the Contest Adjudicator, G3XDY, within 16 days of the end of the contest. G3XDY's email address is: g3xdy@btinternet.com . Postal entries should be sent to: 12 Chestnut Close, Rushmere St Andrew, Ipswich, IP5 1ED, UK

Awards: Certificates will be awarded to overall contest winners and individual section leaders and their runners up. Additional Certificates of Merit will be awarded to stations in certain categories, as indicated in the rules for each event. With these, as with the logs, the adjudicator's decision is final.

Special Rules: Applicable if called up for the specific contest:

Rover Concept: The 'Rover' concept is to encourage lightweight, low power portable activity. This allows the location of the station to be moved as many times as desired and by a minimum of 16 linear kilometres, at any time during the contest period. From each new location, stations worked from any of the previous locations during the event may be worked again, both stations involved in the contact gaining points. The serial number, however, will not revert to 001 each time a move is made but will carry on consecutively from the previous contact.

Low Band Microwave Contest Rules

First introduced in 2004, these contests aim to encourage operation on the three lowest bands in the amateur microwave allocation, particularly as there is growing UK interest in 3.4GHz equipment and triband antenna feeds for these three bands. For 2010, there are four of these events, in March, April and June and November. The March event is a shorter duration event, timed to overlap with the last 4 hours of UHF/SHF events in other IARU Region 1 countries, and it aimed more at home stations, though portable operators are, of course, wel-

come to enter. The April and June events are more likely to suit portable operators, and the June event is also timed to overlap with UHF/SHF events in some other IARU Region 1 countries.

1. The General Rules listed above apply.
2. There are four contests, one in March, one in April, one in June and one in November. The March event runs from 1000 to 1500 UTC, and the April, June and November events run from 0900 to 2000 UTC.
3. There is one section, but the leading stations in a number of categories will be marked in the results table, with certificates awarded (see below).
4. Each band will be scored and tabulated separately. The total points for each band will then be normalised by the adjudicator to 1000 and the normalised band totals added up and tabulated.
5. Each event will be scored separately - there are no cumulative scores.
6. For each session, certificates will be awarded to the leading entry plus runner-up on each band, the overall leading entry and runner-up across the three bands, plus for each band the leading stations in each of the following categories: home station, portable station, and new entrant.

5.7GHz Cumulatives Rules

The 5.7GHz, 10GHz and 24GHz cumulatives are being run concurrently to take advantage of the growth in activity on 5.7GHz and 24GHz. Although they are on the same days, they are completely separate contests. Any band or all bands can be used on any of the 5 days, and any three days submitted for any band.

1. The general rules shown above apply.
2. There are five, monthly, events, from May to September inclusive, and the events run from 0900 to 2000 UTC on a Sunday.
3. Any three of the five events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. There is one section, but the leading stations in a number of categories will be marked in the results table, with certificates awarded (see below).
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up, plus leading stations in each of the following categories: home station, portable station, low-power (1W or less), radio-only talkback, new entrant. The G3KEU Memorial Trophy will also be awarded to the leading entry.

10GHz Cumulatives Rules

The 5.7GHz, 10GHz and 24GHz cumulatives are being run concurrently to take advantage of the growth in activity on 5.7GHz and 24GHz. Although they are on the same days, they are completely separate contests. Any band or all bands can be used on any of the 5 days, and any three days submitted for any band.

1. The general rules shown above apply.
2. There are five, monthly, events, from May to September inclusive, and the events run from 0900 to 2000 UTC on a Sunday.
3. Any three of the five events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. Contestants may submit logs for either of the following sections:

Open: No power or antenna restrictions (other than those laid down in the amateur licence) on either 10GHz or on the talkback band. The 'Rover' concept does not apply to this section.

Restricted: 10GHz transmit output not to exceed 1.0 watt to the antenna. No power restrictions on the talkback band. No antenna restrictions. Moving location during the contest is allowed - the Rover concept is applicable.

5. The final results table will show entries in rank order for each section. In addition to the usual leader/runner-up certificates for each section, the following certificates/trophies will be awarded:

- leading entry in the Open section - **The G3RPE Memorial Trophy**
- leading entry in the Restricted section - **The G3JMB Memorial Trophy**
- certificates to the leading home station, portable station, radio-only talkback station, and new entrant in each section.

24GHz G0RRJ Cumulatives Rules

The 5.7GHz, 10GHz and 24GHz cumulatives are being run concurrently to take advantage of the growth in activity on 5.7GHz and 24GHz. Although they are on the same days, they are completely separate contests. Any band or all bands can be used on any of the 5 days, and any three days submitted for any band.

1. The general rules shown above apply.

2. There are five, monthly, events, from May to September inclusive, and the events run from 0900 to 2000 UTC on a Sunday.
3. Any three of the five events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. There is one section, but the leading stations in a number of categories will be marked in the results table, with certificates awarded (see below).
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up, plus leading stations in each of the following categories: home station, portable station, and single session entry. The leading station will receive the **G0RRJ Memorial Trophy**.

24GHz Trophy Cumulatives Rules

24GHz, 47 and 76GHz make up a set of Millimetre Wave Cumulatives. The dates mainly fall in the summer months; the exception is October, where the date is chosen to overlap with the IARU Region 1 UHF/SHF Contest. Although they are on the same days, the 24GHz, 47GHz and 76GHz events are completely separate contests. Any band can be used on any of the three days, and any two days submitted for any band.

1. The general rules shown above apply.
2. There are five, monthly, events, from May to September inclusive, and the events run from 0900 to 2000 UTC on a Sunday.
3. Any three of the five events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. There is one section, but the leading stations in a number of categories will be marked in the results table, with certificates awarded (see below).
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up for the two sessions combined, and to entrants making their first appearance on either band.

47GHz Cumulatives Rules

24GHz, 47 and 76GHz make up a set of Millimetre Wave Cumulatives. The dates mainly fall in the summer months; the exception is October, where the date is chosen to overlap with the IARU Region 1 UHF/SHF Contest. Although they are on the same days, the 24GHz, 47GHz and 76GHz events are completely separate contests. Any band can be used on any of the three days, and any two days submitted for any band.

1. The General Rules listed above apply.
2. There are three sessions to the 47GHz cumulative in May, July, and October, and the events run from 0900 to 1700 UTC on a Sunday. The best two sessions out of three will be used for scoring purposes.
3. There is one section, but the leading stations in a number of categories will be marked in the results table, with certificates awarded (see below).
4. Operation may be from portable sites or home stations.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up for the two sessions combined, and to entrants making their first appearance on either band.

76GHz Cumulatives Rules

24GHz, 47 and 76GHz make up a set of Millimetre Wave Cumulatives. The dates mainly fall in the summer months; the exception is October, where the date is chosen to overlap with the IARU Region 1 UHF/SHF Contest. Although they are on the same days, the 24GHz, 47GHz and 76GHz events are completely separate contests. Any band can be used on any of the three days, and any two days submitted for any band.

1. The General Rules listed above apply.
2. There are three sessions to the 76GHz cumulative in May, July, and October, and the events run from 0900 to 1700 UTC on a Sunday. The best two sessions out of three will be used for scoring purposes.
3. There is one section, but the leading stations in a number of categories will be marked in the results table, with certificates awarded (see below).
4. Operation may be from portable sites or home stations.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up for the two sessions combined, and to entrants making their first appearance on either band.

Other Microwave Contests

The first weekend of May sees the **RSGB 432MHz -248GHz Multiband Contest** staged in parallel with the Region 1 IARU UHF/SHF Contest. The 10GHz Trophy is run in parallel by the VHF Contest Committee on the Saturday of that weekend, and the rules can be found in the RSGB VHF contest rules.

The first weekend in July is **VHF National Field Day** which includes 1.3GHz as one of the bands.

The first weekend of October sees the **RSGB 432MHz -248GHz Multiband Contest** staged in parallel with the Region 1 IARU UHF/SHF Contest. The 1.3GHz Trophy and the 2.3GHz Trophy are run in parallel by the VHF Contest Committee on the Saturday, and the rules can also be found in the RSGB VHF contest rules.

The RSGB also runs a **cumulative UK Activity Contest on 1.3GHz and 2.3GHz** on the third Tuesday of every month, from 2000 – 2230 local time.

In addition there are other **Continental UHF/SHF Contests** held during the year and interested UK micro-wavers are urged to be active during these. Their details may be found on the Internet.

The latest RSGB Band

Plans which will officially be appearing in the Feb 2010 edition of Radcom have just gone online at:

<http://www.rsgb.org/spectrumforum/bandplans/>

The annual timetable means that changes for now are relatively minor as they have been released ahead of the IARU Vienna meeting (and the mid year interim review for the RSGB Yearbook).

For microwaves, cautionary notes re re-planning of 1.3GHz have been strengthened, and a new note in 3.4GHz added to reflect the upheaval that will eventually occur above 3410MHz due to commercial wireless.

There is also a new general note to respect Beacon bands (inc the old 70cm sub-band)

The Scatterpoint archive

for 2008 has just been made available online at:- www.scatterpoint.org

A reminder that this year will see the migration of electronic Scatterpoint delivery for all UKuG members from direct email to Yahoo based download, (Peter G3PHO, can advise you if necessary).

WHAT A GOOD IDEA!

I noticed on your page in Scatterpoint that you mentioned for those of us who get email versions of Scatterpoint) to remember when our membership expires by putting a tattoo on our arm, etc. Here is how I do it (I used to forget all the time as well)...

On the Scatterpoint Yahoo group webpage, there is a Calendar function in the menus on the top left side of the homepage. For example, mine expires in November, so I bring up the calendar function, go to November and click on "Add Event" in the header of the November calendar and add an event on November 1st. As you enter the data, there is a radio button in the "Repeating" section to select "Repeat" and then select "Every" and "Year" in the drop down boxes. Then set it to send a reminder "14 days" before the event. Yahoo will then send you an email 14 days before the event date November 1st in my case.

73, Scott N0EDV

Editor's note: "seeexamples" !!!

UKuG CONTEST CALENDAR 2010

Month	Contest name	Certificates	Date 2010	Time GMT	Notes
Jan	1.3/2.3GHz Activity Contest	Arranged by VHFCC	19-Jan	2000 - 2230	RSGB Contest
Jan	All-band Activity Day	Non competitive	31-Jan	0900 - 2000	Last Sunday in month
Feb	1.3/2.3GHz Activity Contest	Arranged by VHFCC	16-Feb	2000 - 2230	RSGB Contest
Feb	All-band Activity Day	Non competitive	28-Feb	0900 - 2000	Last Sunday in month
Mar	Low band 1.3/2.3/3.4GHz	"F, P, N"	7-Mar	1000 - 1500	First 4 hours coincide with IARU
Mar	1.3/2.3GHz Activity Contest	Arranged by VHFCC	16-Mar	2000 - 2230	RSGB Contest
Mar	All-band Activity Day	Non competitive	28-Mar	0900 - 2000	Last Sunday in month
Apr	Low band 1.3/2.3/3.4GHz 2	"F, P, N"	11-Apr	0900 - 2000	
Apr	1.3/2.3GHz Activity Contest	Arranged by VHFCC	20-Apr	1900 - 2130	RSGB Contest
Apr	All-band Activity Day	Non competitive	25-Apr	0900 - 2000	Last Sunday in month
May	10GHz Trophy	Arranged by VHFCC	1-May	1400 - 2200	Saturday, to coincide with IARU
May	432MHz & up	Arranged by VHFCC	1- 2 May	1400 - 1400	RSGB Contest
May	1st 24/47/76 GHz Cumulative	N	2-May	0900 - 1700	Aligned with IARU date
May	1.3/2.3GHz Activity Contest	Arranged by VHFCC	18-May	1900 - 2130	RSGB Contest
May	1st 5.7GHz Cumulative	"F, P, L, R, N"	30-May	0900 - 2000	
May	1st 10GHz Cumulative	"F, P, L, R, N"	30-May	0900 - 2000	
May	1st 24GHz Cumulative	"F, P"	30-May	0900 - 2000	
Jun	Low band 1.3/2.3/3.4GHz 3	"F, P, N"	6-Jun	0900 - 2000	Aligned with some Eu events
Jun	1.3/2.3GHz Activity Contest	Arranged by VHFCC	15-Jun	1900 - 2130	RSGB Contest
Jun	2nd 5.7GHz Cumulative	"F, P, L, R, N"	27-Jun	0900 - 2000	
Jun	2nd 10GHz Cumulative	"F, P, L, R, N"	27-Jun	0900 - 2000	
Jun	2nd 24GHz Cumulative	"F, P"	27-Jun	0900 - 2000	
Jul	VHF NFD (1.3GHz)	Arranged by VHFCC	3-4Jul	1400 - 1400	RSGB Contest
Jul	2nd 24 /47/76 GHz Cumulative	N	18-Jul	0900 - 1700	
Jul	1.3/2.3GHz Activity Contest	Arranged by VHFCC	20-Jul	1900 - 2130	RSGB Contest
Jul	3rd 5.7GHz Cumulative	"F, P, L, R, N"	25-Jul	0900 - 2000	
Jul	3rd 10GHz Cumulative	"F, P, L, R, N"	25-Jul	0900 - 2000	
Jul	3rd 24GHz Cumulative	"F, P"	25-Jul	0900 - 2000	
Aug	1.3/2.3GHz Activity Contest	Arranged by VHFCC	17-Aug	1900 - 2130	RSGB Contest
Aug	4th 5.7GHz Cumulative	"F, P, L, R, N"	22-Aug	0900 - 2000	Avoid public holiday
Aug	4th 10GHz Cumulative	"F, P, L, R, N"	22-Aug	0900 - 2000	Avoid public holiday
Aug	4th 24GHz Cumulative	"F, P"	22-Aug	0900 - 2000	Avoid public holiday
Sep	1.3/2.3GHz Activity Contest	Arranged by VHFCC	21-Sep	1900 - 2130	RSGB Contest
Sep	5th 5.7GHz Cumulative	"F, P, L, R, N"	26-Sep	0900 - 2000	
Sep	5th 10GHz Cumulative	"F, P, L, R, N"	26-Sep	0900 - 2000	
Sep	5th 24GHz Cumulative	"F, P"	26-Sep	0900 - 2000	
Oct	1.3 & 2.3GHz Trophies	Arranged by VHFCC	2-Oct	1400 - 2200	RSGB Contest
Oct	432MHz & up	Arranged by VHFCC	2-3-Oct	1400 - 1400	IARU/RSGB Contest
Oct	3rd 24/47/76 GHz Cumulative	N	3-Oct	0900 - 1700	Aligned with IARU date
Oct	1.3/2.3GHz Activity Contest	Arranged by VHFCC	19-Oct	1900 - 2130	RSGB Contest
Oct	All-band Activity Day	Non competitive	31-Oct	0900 - 2000	Last Sunday in month
Nov	1.3/2.3GHz Activity Contest	Arranged by VHFCC	16-Nov	2000 - 2230	RSGB Contest
Nov	Low band 1.3/2.3/3.4GHz 4	"F, P, N"	28-Nov	0900 - 2000	Moved to avoid 144MHz AFS
Dec	1.3/2.3GHz Activity Contest	Arranged by VHFCC	21-Dec	2000 - 2230	RSGB Contest
Dec	All-band Activity Day	Non competitive	26-Dec	0900 - 2000	Last Sunday in month
Certificates		F	Fixed / home station		
		P	Portable		
		L	Low-power <1W TX		
		R	Amateur radio only talkback (no KST or telephone)		
		N	New band user (not logged in previous years events)		

Main changes from 2009 calendar: Date changes for 2nd and 4th Low Band events to avoid clashes

UK MICROWAVE ROUND TABLE MEETINGS 2010

RAL 2010

Arrangements for the RAL round table are nearing completion and full details will be posted on the UKuG Web pages shortly.

The fun starts on Saturday 17th April with an **antenna test session** at G4NNS, QTHR near Andover Hants. We normally have test equipment for 13cms to 24GHz but will extend this down to 23cms this time as **there are rumours of a novel antenna for this band**, which we hope the owner will bring to be tested .

The test session will be followed by a **dinner** to be held at a local pub. Accommodation will be available.

The Round Table meeting will take place at the **Rutherford Appleton Laboratories** at Didcot Oxon on **Sunday 18th April** starting at 10:00am.

Talks so far confirmed include:-
"ATV on the higher microwave bands" and
"The Bodger's Guide to S parameters"

There will be another talk, title to be advised.
There will be the **usual swapping / trading** of fine microwave material. **As usual admission will be by registration in advance.**

Full details, including how to register, will be posted on the UKuG web pages shortly:

www.microwavers.org

Crawley RT 2010

The Crawley Amateur Radio Club confirms the date of the 2010 Microwave Round Table at CARC as **Sunday 12th September 2010.**

The proposed format and start time, etc, will be similar to those in previous years. More details will be forthcoming later. We Would welcome inputs/offers of speakers, etc. from UKuWave Group.

73, Derek Atter G3GRO

SOUTH YORKSHIRE uW ROUNDTABLE

Dates: 10-11th July 2010

Venue: Funningley A. R. S HQ,
near Doncaster.

Programme:

Saturday – Beginners Workshop
Sunday - Lectures

Antenna test range: Sunday morning
weather permitting

Test gear: To be announced.

Dinner: Saturday evening. Venue T.B.D.

Further details later in Scatterpoint

GB3CSB NOW ACTIVE ON 23cm

From: Mark GM4ISM

Date: 21 December 2009

Thanks to David, GM6BIG, the first of the Central Scotland microwave beacons is now QRV on 1296.985000MHz, running JT4G on even minutes, carrier odd minutes, callsign in CW at 10 sec to each minute. The mark tone is the middle of the JT4G tone group. The space tone is placed at approx 865 Hz on the waterfall and is easy to spot.

The beacon is located alongside GB3CS and other repeaters, including GB3TC on 3cm. It is GPS locked in frequency and timing. My receiver is showing a DT of 2.3 Sec, decoding comfortably at -21dB with many attenuators between my waterlogged antenna and the RX

Go look!! Please spots and send reports !